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MATTERS RELATING TO THE DEFINITION AND DELIMITATION OF OUTER SPACE AND TO THE CHARACTER AND UTILIZATION OF THE GEOSTATIONARY ORBIT, INCLUDING CONSIDERATION OF WAYS AND MEANS TO ENSURE THE RATIONAL AND EQUITABLE USE OF THE GEOSTATIONARY ORBIT WITHOUT PREJUDICE TO THE ROLE OF THE INTERNATIONAL TELECOMMUNICATION UNION

Comprehensive analysis of the replies to the questionnaire on possible legal issues with regard to aerospace objects

Note by the Secretariat

CONTENTS

	Paragraphs	*Page*
INTRODUCTION	1-7	2
COMPREHENSIVE ANALYSIS OF THE REPLIES RECEIVED FROM MEMBER STATES	8-80	3
Question 1: Can an aerospace object be defined as an object which is capable both of travelling through outer space and of using its aerodynamic properties to remain in airspace for a certain period of time?	8-17	3
Question 2: Does the regime applicable to the flight of aerospace objects differ according to whether it is located in airspace or outer space?	18-26	5

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	Paragraphs	*Page*
Question 3: Are there special procedures for aerospace objects, considering the diversity of their functional characteristics, the aerodynamic properties and space technologies used, and their design features, or should a single or unified regime be developed for such objects?	27-37	6
Question 4: Are aerospace objects while in airspace considered as aircraft, and while in outer space as spacecraft, with all the legal consequences that follow therefrom, or does either air law or space law prevail during the flight of an aerospace craft, depending on the destination of such a flight?	38-42	7
Question 5: Are the take-off and landing phases specially distinguished in the regime for an aerospace object as involving a different degree of regulation from entry into airspace from outer space orbit and subsequent return to that orbit?	43-50	8
Question 6: Are the norms of national and international air law applicable to an aerospace object of one State while it is in the airspace of another State?	51-58	9
Question 7: Are there precedents with respect to the passage of aerospace objects after re-entry into the Earth's atmosphere and does international customary law exist with respect to such passage?	59-64	10
Question 8: Are there any national and/or international legal norms with respect to the passage of space objects after re-entry into the Earth's atmosphere?	65-71	11
Question 9: Are the rules concerning the registration of objects launched into outer space applicable to aerospace objects?	72-79	12
Conclusion	80	13

INTRODUCTION

1. In 1992, at the thirty-first session of the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space, the delegation of the Russian Federation submitted a working paper entitled "Questions concerning the legal regime for aerospace objects" (A/AC.105/C.2/L.189) as a starting point and a stimulus for a discussion that could possibly break the impasse in the debate between States which considered that delimitation of airspace and outer space was necessary, and States which considered that it was not necessary. In 1993, the Chairman of the Working Group on agenda item 4, on matters relating to the definition and delimitation of outer space and to the character and utilization of the geostationary orbit, in consultation with a number of interested delegations, circulated an informal paper entitled "Draft questionnaire concerning aerospace objects" (A/AC.105/C.2/1993/CRP.1) as a starting point for the preparation of a questionnaire to be sent to Member States. In 1994, the Chairman circulated an informal paper containing an introduction to the draft questionnaire intended to briefly explain the origin and objectives of the questionnaire.

2. In 1995, at the thirty-fourth session of the Legal Subcommittee, an integrated document containing the draft questionnaire and the two introductory paragraphs drafted at the thirty-third session was distributed to member States of the Committee (A/AC.105/C.2/1995/CRP.3). On the basis of discussions and informal consultations, the Chairman of the Working Group prepared and circulated a revised version of the

working paper entitled "Questionnaire on possible legal issues with regard to aerospace objects" (A/AC.105/C.2/1995/CRP.3/Rev.3), which was approved by the Working Group.

3. At the thirty-fourth session, the Working Group recommended, and the Legal Subcommittee agreed, that the purpose of the questionnaire was to seek the preliminary views of member States of the Committee on various issues relating to aerospace objects. It was hoped that the replies to the questionnaire would provide a basis for the Legal Subcommittee to decide how it might continue its consideration of agenda item 4. The Legal Subcommittee therefore agreed that member States of the Committee should be invited to give their opinion on those matters. The Subcommittee also agreed that, at its session in 1996, the Secretariat should submit a document containing answers to the questionnaire that might have been received from member States of the Committee.

4. Pursuant to the above-mentioned recommendation, the Secretariat prepared the document "Questionnaire on possible legal issues with regard to aerospace objects: replies from Member States" (A/AC.105/635 and Adds. 1, 2 and 3) which contained 14 substantive and one general response to the questionnaire.

5. The Working Group recommended at its 1996 session (A/AC.105/639, annex I), that the Secretariat should prepare, in time for the thirty-sixth session of the Legal Subcommittee, a comprehensive analysis of the replies that had been received to the questionnaire on possible legal issues with regard to aerospace objects, in order to assist the Working Group in its deliberations.

6. The recommendations of the Working Group were endorsed by the Legal Subcommittee in its report on the work of its thirty-fifth session (A/AC.105/639, para. 35), and by the Committee in its report on the work of its thirty-ninth session (A/51/20, para. 128). The General Assembly also endorsed the recommendations of the Working Group in its resolution 51/123 of 13 December 1996.

7. The present analysis has been prepared by the Secretariat pursuant to the above-mentioned recommendation and analyses responses received by 31 January 1997.

COMPREHENSIVE ANALYSIS OF THE REPLIES RECEIVED FROM MEMBER STATES

Question 1: Can an aerospace object be defined as an object which is capable both of travelling through outer space and of using its aerodynamic properties to remain in airspace for a certain period of time?

8. Of the 14 States that provided substantive replies to the question, five appeared to accept the definition as stated. Seven accepted the definition with certain reservations. Of those seven, one stated that the suggested definition could be used for working purposes.

9. Of the remaining two States from which replies were received, one stated that the definition should be modified, and that other terms such as "flights" in the atmospheres of other planets as well as a definition of "space-only objects" (objects with all the capabilities of aerospace objects, but not capable of flying in airspace), should also be included. The other State replied that since the definition could not be found in any international legal literature nor international legal regulation, another technical term, "space transportation system", should be used. In advocating use of that term in lieu of "aerospace object", that State observed that such systems had a number of common features. In particular, the systems were all space objects designed for the exploration and use of outer space from launch to landing and were governed by international space law. Moreover, they were designed to land on Earth after re-entry into the atmosphere like an airplane.

10. Some States observed that currently aerospace objects were designed for two purposes: Earth-to-Earth missions and the transportation of crew and/or payload into outer space and back to Earth.

11. In the view of one State, a potential definition should take into consideration that the concept of an "aerospace object" would cover different types of aerospace vehicles, some of which might already be operative and others that are still being designed and planned. That State further observed that all current and future aerospace vehicles had a common denominator in that such objects were designed to travel using both aeronautical and astronautical properties, thereby enabling them to fly in airspace and move in outer space.

12. One State considered that the words at the end of the definition, "for a certain period of time", needed to be clarified as a specific characteristic of an aerospace object.

13. Other States considered that the definition was acceptable in its present form, as long as it was understood that another characteristic of an aerospace object was included to the extent that it was performing a space activity or mission.

14. Some States noted that the definition given was based on only two criteria: travelling through outer space and remaining in airspace for a certain period of time. In that regard, those States and others were of the view that a potential definition of aerospace objects and their specific characteristics should be closely linked with developing technology, and should include additional criteria based on that developing technology. Furthermore, one State observed that a thorough examination of the specific characteristics of aerospace objects would be necessary, taking into account more sophisticated and evolving technology. Some States also considered that the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space should be given the mandate to study and define the technical aspects and prerequisites of those objects before the Legal Subcommittee could proceed with its work.

15. It appears from the foregoing that although one State would prefer use of the term "space transportation system" rather than the term "aerospace object", the views of various States on the conceptual idea behind such vehicles is similar. Except as regards the application of international space law to aerospace objects, whatever terminology is used, the common characteristics listed by various countries in their responses are similar and complementary.

16. On the basis of the replies and suggestions received, common elements of aerospace objects could be considered to include the following:

(a) Ability to fly in airspace;

(b) Ability to travel in outer space;

(c) Performing a space activity or mission;

(d) Design characteristics permitting a landing on Earth after re-entry into Earth's atmosphere, like an airplane.

17. From the foregoing, and on the basis of the replies received, a preliminary approach to formulating a definition of an aerospace object might read as follows: "A[n] [aerospace object] [space transportation system] is an object which is capable both of travelling through [or staying in] outer space and of using its aerodynamic properties to remain in airspace [for a certain period of time] [for (primarily) (exclusively) space purposes]."

Question 2: Does the regime applicable to the flight of aerospace objects differ according to whether it is located in airspace or outer space?

18. Of the 14 States that replied to the question, five answered in the affirmative, one of those answers giving a significant scientific explanation of the technical attributes of aircraft and spacecraft and why at an altitude lower than between 90 and 100 kilometres the orbit of a spacecraft was bound to decay and thus subject a spacecraft to rules of air law. Five other answers were also in the affirmative and accompanied by legal justifications. Finally, four negative answers were also given.

19. Some States observed that the legal regime applicable to an aerospace object would be different according to its location. In that connection, one State noted specifically with regard to aerospace objects that the Convention on International Civil Aviation signed at Chicago in 1994 (the Chicago Convention) would apply in airspace and space law to an object in outer space.

20. Some States expressed the view that the legal regime applicable to aerospace objects differs according to the purpose of the flight, and must be determined in accordance with the corresponding norms of international space or air law. For example, the regime applicable for an aerospace object undertaking an Earth-to-Earth mission without entering outer space was determined by the laws of international air law, while an aerospace object undertaking an Earth-orbit mission would fall within the jurisdiction of international space law. One State expressed the view that the real flight of a craft in airspace based on the principles of aeronautics and the movement of an object to, in and from orbit on the basis of astronautic principles would thus subject such a craft to both air and space law.

21. In that regard, another State also expressed the view that because aerospace objects were meant for outer space activities, the operational circumstances of crossing Earth's atmosphere did not affect the function of the objects under a unified regime. Another State also expressed the view that no distinction should be made when the mission performed was a space mission. That State also observed that the formulation of provisions on the innocent passage of a space object over national airspace would be more useful.

22. Another State expressed the view that no differentiation was necessary in order to avoid the dual application of two sets of laws to one situation, which would produce confusion.

23. One State expressed the view that space transportation systems designed for the exploration and use of outer space were space objects according to the entire body of space law, whether they were travelling in airspace or outer space, but noted that international air traffic law could also be applicable after re-entry into Earth's atmosphere, especially since air traffic could interfere with the flight of the space transportation system. In particular, on the basis of distance to travel (around 8,000 kilometres) and the time before touchdown (14-15 minutes after passing the 60-kilometres-altitude ceiling), serious precautions have to be taken to avoid collision, since re-entering space craft did not have the same manoeuvrability. Therefore, in the view of that State, air traffic and space lawyers should work together to elaborate a common solution with regard to the legal norms applicable to space objects re-entering through the airspace of foreign States and their particular legal regimes.

24. The foregoing indicates that many replies did in fact note that space and air law could apply to aerospace objects or space transportation systems. In terms of safety, in the view of one State, air traffic law could apply to space transportation systems during their passage through the atmosphere, in order to avoid possible collisions, but space law would govern overall.

25. Some States consider that the applicability of air or space law depends on the spatial approach, or the location of an aerospace object in air space or outer space, while others consider that a functional approach or the purpose of an aerospace object should govern a determination of what law applies. Still other States

consider that appropriate provisions for aerospace objects need to be formulated to govern their use. Alternatively, in the view of one State, provision for the innocent passage of space objects over national airspace would be very useful.

26. There was a wide variety of views on the above-mentioned subject, requiring further elaboration and thinking to take into account the differing views. It appears, however, on the basis of the replies received, that States might be in a position to further discuss the compatibility of air and space law. Many States also advocated a further examination of several concerns to find common solutions to the problems addressed and/or the elaboration of provisions on such matters as the innocent passage of a space object over national air space.

Question 3: Are there special procedures for aerospace objects, considering the diversity of their functional characteristics, the aerodynamic properties and space technologies used, and their design features, or should a single or unified regime be developed for such objects?

27. Question 3 could be broken into two parts: the first part concerns the existence of special procedures for aerospace objects; and the second asks whether a single or unified regime should be developed for such objects.

28. With regard to the first part of the question, some States expressed the view that unless a single special regulation for aerospace objects was developed, those objects capable of being used for both purposes would face two different legal regimes. In particular, one State expressed the view that differences will arise in the application of air and space law in specific areas, including the legality of flight (air law, relating to authorization of a foreign State; space law, relating to freedom of activities in outer space); registration of aircraft pursuant to the Chicago Convention and of spacecraft pursuant to the Convention on Registration of Objects Launched into Outer Space (General Assembly resolution 3235 (XXIX), annex) (Registration Convention); and the basis for liability (air law, involving international treaties and national law; space law, involving international law). That State also expressed the view that the possibility existed whereby some types of aerospace object could be considered as aircraft even if part of their flight was in outer space, and other types of aerospace object could be considered as space objects, since aerodynamics would be used only for take-off and landing. In terms of a single or unified regime for aerospace objects, in the view of that State, the possibility of such a contingency arising was rather remote.

29. Some States noted that no special procedures for aerospace objects existed that took into account the diversity of their functional characteristics, their aerodynamic properties and their design features.

30. In the view of one State, no special procedures or international regulations for space transportation systems seemed to be necessary, as there have been no sustained precedents (apart from the one flight of the Space Shuttle Buran of the former Union of Soviet Socialist Republics) that required the elaboration of regulations. As for a single or unified regime, that State expressed the view that the question should be postponed until the Scientific and Technical Subcommittee undertook a technical study on aerospace objects.

31. Some States expressed the view that a single or unified regime should be developed for aerospace objects to cover all aspects involved, in order to avoid legal disorder as a result of the increase in number and use of those objects. Some States also expressed the view that a general regime should be established, taking into consideration flights of all types of aerospace object, including "trans-atmospheric" flight and direct re-entry with a maintainable body. Such a regime should also be refined at later stages, in the light of space-related developments in this field.

32. With regard to the preparation of a unified regime, one State considered that such a regime should be prepared by a neutral relevant international organization.

33. One State replied that a regime could be considered if the concept of aerospace objects was not extended to include "space-only objects". In the view of that State, because special procedures regulating the diversity of aerospace objects did not exist in international law, and because of probable future technological developments, a unified regime would not be legally necessary at the present time.

34. One State noted that the issue of paramount importance was whether procedures should be brought into effect for notification of the passage of aerospace objects through the airspace of foreign States. In this regard, a number of features would be used for reference, including, most importantly, the designation of the aerospace object as either a transportation system intended for the carriage of payload or passengers from one point on Earth to another, or a system designed to be launched into space.

35. Therefore, depending on the nomenclature chosen to define the objects, it seems, on the basis of the replies received, that all respondents agree that no special procedures for aerospace objects exist.

36. With regard to the second part of question 3, concerning whether a single or unified regime should be developed for the specified objects, the views of respondents were divided. Some stated that a single or unified regime was necessary in order to avoid confusion and to take into account the future increase in number, use and diversity of such objects. Others stated that it would be premature to move forward with such a regime because of future technological developments in the field, which, in the view of one respondent, should be studied first by the Scientific and Technical Subcommittee. Finally, in the view of one State, another question should be discussed thoroughly, namely, whether procedures should be brought into effect in terms of notification.

37. Accordingly, there was no clear indication of what should be done with regard to a single or unified regime, as it was not apparent whether agreement in this area existed. Reference to the analysis of replies to question 2 would thus be appropriate, since the substance of the replies received indicates that States may at least wish to further discuss the compatibility of air and space law approaches within a limited context.

Question 4: Are aerospace objects while in airspace considered as aircraft, and while in outer space as spacecraft, with all the legal consequences that follow therefrom, or does either air law or space law prevail during the flight of an aerospace craft, depending on the destination of such a flight?

38. Some States, following the spatial approach, expressed the view that aerospace objects capable of serving both purposes could be considered as aircraft while in airspace and as spacecraft while in outer space. In the view of one State, legal problems such as sovereignty over airspace and aerial safety made the spatial approach more appropriate for determining applicable law. In the view of another State, however, it could be considered that aerospace objects that serve the purposes of air transportation and even fly for a certain period of time in outer space might essentially remain aircraft, while those objects that fly through airspace for the purposes of ascent or descent from outer space might be considered spacecraft (for example the Space Shuttle), but each of the objects must observe certain principles and rules of the other legal regime. One State also noted that, on the basis of the diversity of missions and legislation applicable in each case, only one legal regime should apply, depending on the destination of the particular flight.

39. Some States expressed that view that rules of international and national air law could also apply for the practical purposes of aviation safety and air navigation.

40. One State noted that with regard to space transportation systems, international space law was applicable whether the systems were travelling through airspace or outer space. In the view of that State, with the absence of specific international air traffic regulations for space transportation systems, air traffic and space lawyers should eliminate incompatibilities between the two regimes to make re-entry of the systems legally possible.

taking into account the legitimate rights and interests of States affected by such passage and the security interests of international aviation.

41. Some States observed that on a technical level, aerospace objects should not be considered as aircraft because they were designed to be spacecraft with special procedures for design, construction and launch different from those applying to aircraft, not to mention that their flexibility and capability to manoeuvre as aircraft was only incidental to their intended use. One State noted that space law should prevail for those objects as long as the purpose of the flight was activities in outer space. That view accounts for the proposal that the definition given in question 1 should be modified to include the words "for (primarily) (exclusively) space purposes". Similarly, another State expressed the view that the criterion for determining applicable law was the purpose of the object's flight. Therefore, as technology became more sophisticated, the issue would become one of whether existing provisions of international air and space law needed to be supplemented.

42. Some States observed that a suitable single regime for aerospace objects should be developed for such objects while in airspace and outer space. In that regard, another State observed that such a regime should take into account the delimitation of airspace. Another State also observed that such a regime for aerospace objects while in airspace and outer space should be developed, depending on their destination.

43. The replies received to question 4 indicated a disparity of views on the matter. Many respondents were of the view that aerospace objects should not be considered as aircraft while in airspace, but that for purposes of safety and air navigation, national and international air-traffic rules should be followed. Those air-traffic rules, however, should not govern the flights of aerospace objects. Some respondents went further and stated that the applicable law for aerospace objects was space law, as long as the primary purpose of the flight was activities in outer space. Others were of the view that the location of the aerospace object was the key factor (the spatial approach). When in airspace, air law would apply, and when in outer space, space law would apply. In the view of some States on both sides of the debate, a suitable unified regime for aerospace objects should be formulated. Finally, one State expressed the view that existing international air and space law might have to be supplemented, taking into account new and diverse technological advancements. To a certain extent, the disparity of views could perhaps be explained by the lack of an agreed definition of the term "aerospace object".

Question 5: Are the take-off and landing phases specially distinguished in the regime for an aerospace object as involving a different degree of regulation from entry into airspace from outer space orbit and subsequent return to that orbit?

44. Some States observed that there should be no difference in regulation of take-off and landing phases. Another State observed in this regard that only the operating procedures should be considered. Another State also observed that flight phases of aerospace objects primarily performing activities in outer space should not be subject to another legal regime, as the overall flight was governed by space law. Some States expressed the view that under the current legal system, there was no special regime that distinguished take-off and landing phases, but in the case of passage over the territorial airspace of another State after entry into airspace, international and national air law of relevant States could apply, in particular in relation to the sovereignty and security of the State concerned. In that regard, another State noted that in viewing the mission of a particular aerospace object, the only portion of that mission that should be regulated was its innocent passage over the territory of another State.

45. In the view of one State, an airspace vehicle that served the purposes of astronautics did not require a different degree of regulation for its take-off and landing phases, as long as it observed the principles and rules of air law. An aerospace object capable of serving both purposes (flying as an aircraft and moving as a spacecraft) should operate in conformity with air and space law in the appropriate areas.

46. Another State observed that if a special regime for space transportation systems was elaborated, it would be necessary to distinguish between the take-off and landing phases because of their differences. While the take-off trajectory was very steep, the landing trajectory extended over approximately 8,000 kilometres. Moreover, launchings were usually performed on the territory of the "home" State or in cooperation with a foreign State, and any problems that could arise would therefore be dealt with accordingly.

47. Similarly, for aerospace objects, some States expressed the view that the phases referred to should be distinguished. Some States observed that a different degree of regulation was necessary for entry into airspace from outer space orbit and return to that orbit, and that the characteristics of aerospace objects should be taken into account if and when a special regime was elaborated.

48. In the view of one State, the take-off and landing phases of aerospace objects would include air-traffic precautions, although special requirements in those phases of the flight of aerospace objects might be necessary.

49. Another State noted that establishing such a distinction would entail the elaboration of appropriate regulatory criteria and mechanisms to cover those aspects of the flight of aerospace objects, followed by a codification of the distinctions into international space law.

50. As in the case of question 4, although there seem to be differences of opinion as to whether or not the distinct phases require different degrees of regulation, it was apparent from the substantive comments received that if a special regime for aerospace objects were to be discussed and formulated, all aspects mentioned by the respondents could be incorporated into appropriate language for such a special regime. Again, concerns of safety, national security and sovereignty were raised by many respondents, including some who felt that there should be no difference in regulation of the phases.

Question 6: Are the norms of national and international air law applicable to an aerospace object of one State while it is in the airspace of another State?

51. Some States expressed the view that both national and international air law were applicable.

52. Some States were of the opinion that norms of international and national air law would be applicable, but only to aerospace objects capable of performing aeronautic manoeuvres, and not to those aerospace objects essentially considered as space objects. Some States expressed the view that the application of international and national air law to objects with characteristics subject to air and space law would be necessary by reason of national security and aerial safety.

53. In the view of one State, since space transportation systems were designed for the exploration and use of outer space, those systems were subject to space law whether they were travelling in airspace or outer space. That State, in referring to previous responses to other questions, noted, however, that international and national air law would apply for practical purposes such as safety and air-traffic navigation. Another State observed that although air law was not applicable, in certain instances, it might be necessary to examine whether the flight activity of an aerospace object was performed in accordance with existing rules of air navigation as a means of resolving possible differences. Similarly, some States expressed the view that if the purpose of the flight was a space mission, then space law should apply. In that regard, one State observed that the formal criterion for a determination of applicable law should be whether a State registers an object as an aircraft or a spacecraft.

54. Some States were of the view that all aerospace objects re-entering through the airspace of foreign countries could be subject to international air-traffic law. Some States also expressed the view that norms of air law for the safety of air navigation should be applicable, if, for example, in the view of one of those States, a spacecraft overshot and flew into the airspace outside its flight path.

55. One State noted that an answer to the question required a distinction to be made between airspace and outer space, and due account being given in particular to the outcome of debates in the Legal Subcommittee. International and national air law could not, in their entirety, be applied to aerospace objects, and clear-cut norms for those objects were necessary.

56. Some States expressed the view that the Chicago Convention should govern the situation, and if changes were needed, recourse to appropriate consultations involving the International Civil Aviation Organization (ICAO) could then be considered.

57. One State observed that for those aerospace objects performing Earth-to-orbit flights with flight paths through the airspace of another State, an examination of the possibility of codifying rights of innocent passage might be necessary. In this regard, special consideration of the features of Earth-to-Earth flights would be necessary. Moreover, that State noted that objects performing Earth-to-orbit flights would present practical difficulties in meeting all the requirements of air law.

58. Respondents held various views on the applicability of international and national air law, which seem to be divided between the functional and the spatial approach. With regard to those respondents advocating the functional approach, an indication of whether a special regime for aerospace objects would be necessary was not evident. For those advocating the spatial approach, clearly a special regime to govern the passage through the air space of another State was needed. Others also advocated reference to, and application of, ICAO standards in such situations. The replies on the issue of applicability of international and national air law have therefore shed further light on the question of passage through foreign airspace.

Question 7: Are there precedents with respect to the passage of aerospace objects after re-entry into the Earth's atmosphere and does international customary law exist with respect to such passage?

59. Some States expressed the view that there have been no precedents with respect to the passage of aerospace objects after re-entry into Earth's atmosphere. Some were of the opinion that there has not yet been sufficient support in space law to conclude that a right of passage for ascending or descending space objects has been recognized as a rule of customary international law, but that in practice, such passage occurred without protest, and that as long as the passage was innocent and not prejudicial to the peace and security of subjacent States, then it could serve as the basis for the legalization of the actual practice. In this regard, one State observed that even though the passage occurred without objection, this did not signify approval of passage as international practice or precedent, since the States concerned had no information about the passage, and since no disadvantage arose because it occurred.

60. One State noted that for space transportation systems, the example of the Space Shuttle of the United States of America did not necessarily constitute a precedent, since its take-off was undertaken over United States territory and its landing was effected over the high seas and United States territory. On the other hand, the same State observed that the Space Shuttle Buran of the former Soviet Union had flown only once, but had overflown foreign territory upon re-entry. Whether or not consultations took place with, or information was passed to, subjacent States is unknown. Since the United States Space Shuttle created no precedent with regard to overflight, and since the Space Shuttle Buran was not a sufficient precedent for the formulation of customary international law, no international custom existed with respect to the passage of space transportation systems over foreign territory because no international practice existed.

61. Some States were of the view that precedents did exist with regard to falling space objects, such precedents relating not to the passage of functional aerospace objects, but only to the falling of space debris to Earth. Those States noted that precedents did in fact exist, and cited numerous examples, including the falling of COSMOS-954 on Canadian territory and Skylab on Australian territory. One State went further and noted that

there were other examples of re-entry besides the two just mentioned, including the re-entry of Apollo 13/SNAP 27 into the atmosphere over the South Pacific, before being lost in the Tonga Trench, and the accident of COSMOS-1402, which re-entered the atmosphere over the high seas and disintegrated. That State believed, however, that no specific international customary law existed with respect to the passage of aerospace objects over foreign territories.

62. In terms of international customary law, one State observed that with regard to the passage of aerospace objects through foreign airspace, such law was still in a state of development. In the view of one State, because of the successive flights of the United States Space Shuttle through the airspace of many third States, these could be considered as precedents of innocent passage, and since no opposition or objection had been raised, an international customary-law right had thus been created by such passage, analogous to the case of the first artificial Earth satellite. One State also observed that with regard to precedent, by virtue of an agreement between the Russian Federation and Kazakstan on the passage of space objects of the Russian Federation, precedents for such passage did exist.

63. One State observed that international practice in this regard was evolving, whereby State sovereignty did not extend to space located above the orbit of least perigee of an artificial Earth satellite (approximately 100 kilometres above sea level). In cases where flights have occurred below this level, States have furnished, on the basis of goodwill, relevant information to States whose territory was overflown, as in 1990, when the authorities of the United States furnished the authorities of the former Soviet Union with information on the flight of the United States Space Shuttle that flew over the eastern regions of the territory of the former Soviet Union. In the view of that State, such information was furnished as a courtesy and based on an agreement whereby the information given would not be deemed to set a precedent, although the procedures followed could suggest an example for future practices. According to that State, provisions of international customary law in this field were evolving.

64. On the basis of the foregoing analysis, it should be noted that there were diverse views on the issue of precedent. Although not all States agree on the existence of precedent for the passage of aerospace objects, there have been attempts in the international community to agree on appropriate formulations for the passage of space objects.

Question 8: Are there any national and/or international legal norms with respect to the passage of space objects after re-entry into the Earth's atmosphere?

65. Some States observed that although no specific rules governed the passage of aerospace objects after re-entry into Earth's atmosphere, some general provisions of international space law governed all stages of space flight, including the passage of space objects through Earth's atmosphere. Examples given included the relevant provisions of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (General Assembly resolution 2222 (XXI), annex), the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (General Assembly resolution 2345 (XXII), annex), the Convention on International Liability for Damage Caused by Space Objects (General Assembly resolution 2777 (XXVI), annex), the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (General Assembly resolution 1962 (XVIII)) and the Principles Relevant to the Use of Nuclear Power Sources in Outer Space (General Assembly resolution 47/68).

66. One State observed that space transportation systems designed for the exploration and use of outer space from launch to landing were governed by international space law. In this regard, international air-traffic law could apply to space transportation systems for practical reasons. That State noted its national aviation legislation whereby aircraft were defined. In this context, the law set out that spacecraft, rockets and similar flying objects were regarded as aircraft as long as they were in airspace. Another State noted that according to

its civil aviation code as well as national practices, space objects in airspace were subject to the same rules as aircraft and other flying objects.

67. Another State noted that under its Act on Space Activity, a foreign State might make one innocent flight for the purpose of entry into orbit around Earth and also for the purpose of its return to Earth, provided that the authorities were given sufficient advance notice of the parameters surrounding the flight. Another State noted that its Act on Space Activity, currently being drafted, would make provision for such passages.

68. Some States expressed the view that existing national and/or international legal norms should apply with respect to space and aerospace objects after re-entry into Earth's atmosphere.

69. Some States expressed the view that in their jurisdictions, there were no legal norms with respect to the passage of aerospace objects after re-entry into Earth's atmosphere. Some also expressed the view that there were no international legal norms applicable to such passage.

70. One State expressed the view that the elaboration of international legal norms on the passage of aerospace objects should be undertaken.

71. On question 8, most respondents (with the exception of one that stated that no information was available and another that indicated no national legal norms for such passages) stated that some form of international or national norm existed that either did or could govern the passage of space objects after re-entry into Earth's atmosphere.

Question 9: Are the rules concerning the registration of objects launched into outer space applicable to aerospace objects?

72. Most States observed that the rules concerning the registration of objects launched into outer space were applicable to aerospace objects. In that regard, one State noted that those rules would be applicable to aerospace objects that were essentially considered to be space objects.

73. Some States observed that those objects capable of serving both purposes should be subject to a double registration as an aircraft and a spacecraft, unless, in the view of one of the respondents, a single regime for aerospace objects was elaborated that could include special procedures for the registration of such objects.

74. Some States observed that a new registration procedure that reflected the characteristics of aerospace objects was necessary and should be prepared.

75. Some States suggested that aerospace objects should be considered differently from other space objects registered under the Registration Convention. In the view of one of those States, registration should therefore be vested in a different body.

76. One State considered that amending or adding to existing rules to take into account the special characteristics of aerospace objects would be premature, but might in time be necessary. In this regard, information beyond that already required could be provided for aerospace objects, such as its planned flight path through the airspace of other States, but such information would be based on a further study and examination of the features and operation of aerospace objects. Moreover, the concept of "launching state" would have to be examined in the light of new means to be developed for the launch of aerospace objects.

77. One State noted that further study was necessary to determine whether a need to register existed, taking into account the shortness of the orbiting phase that could be attributed to an aerospace object.

78. One State considered that space transportation objects assembled in space and destined never to land on Earth or make an aerial flight should also be registered, and their routes and destinations declared in order to avoid any incidents.

79. In general, most States agreed that the Registration Convention should apply, but others strongly favoured the use of another registration mechanism, and preferred that a single unified regime, if and when elaborated, should provide for the registration of aerospace objects.

Conclusion

80. The foregoing analysis appears to indicate some movement of opinion with regard to the possibility of at least continuing the dialogue thus initiated, with contributions from both air and space lawyers on matters relating to aerospace objects.

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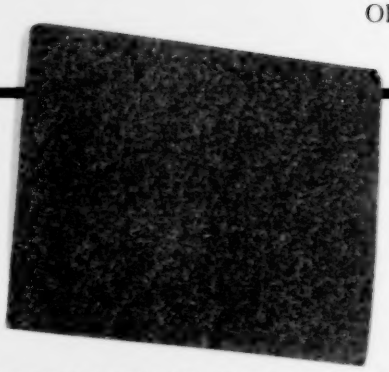

COMMITTEE ON THE PEACEFUL
USES OF OUTER SPACE
Legal Subcommittee
Thirty-sixth session
Vienna, 1-18 April 1997
Item 4 of the provisional agenda

MATTERS RELATING TO THE DEFINITION AND DELIMITATION OF OUTER SPACE AND TO THE CHARACTER AND UTILIZATION OF THE GEOSTATIONARY ORBIT, INCLUDING CONSIDERATION OF WAYS AND MEANS TO ENSURE THE RATIONAL AND EQUITABLE USE OF THE GEOSTATIONARY ORBIT WITHOUT PREJUDICE TO THE ROLE OF THE INTERNATIONAL TELECOMMUNICATION UNION

An analysis of the compatibility of the approach contained in the working paper entitled "Some considerations concerning the utilization of the geostationary satellite orbit"* with the existing regulatory procedures of the International Telecommunication Union relating to the use of the geostationary orbit

Working paper prepared by the Secretariat in cooperation with the secretariat of the International Telecommunication Union

*A/AC.105/C.2/L.200 and Corr.1.

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CONTENTS

	Paragraphs	*Page*
INTRODUCTION	1-3	2
I. EXISTING REGULATIONS OF THE INTERNATIONAL TELECOMMUNICATION UNION RELATING TO THE USE OF THE GEOSTATIONARY ORBIT	4-17	2
II. THE APPROACH DESCRIBED IN THE WORKING PAPER AND ITS COMPATIBILITY WITH THE EXISTING REGULATORY PROCEDURES OF THE INTERNATIONAL TELECOMMUNICATION UNION RELATING TO THE USE OF THE GEOSTATIONARY ORBIT	18-26	5

INTRODUCTION

1. In 1996, at the thirty-fifth session of the Legal Subcommittee, the delegation of Colombia circulated a working paper entitled "Some considerations concerning the utilization of the geostationary satellite orbit" (A/AC.105/C.2/L.200 and Corr.1). The working paper was considered by the Subcommittee, as well as by its Working Group on agenda item 4, entitled "Matters relating to the definition and delimitation of outer space and to the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union". The working paper was subsequently annexed to the report of the Subcommittee on the work of its thirty-fifth session (A/AC.105/639, annex III, sect. A).

2. The Legal Subcommittee at its thirty-fifth session endorsed several recommendations of the Working Group, including one in which the Working Group recommended that the Secretariat, in cooperation with the secretariat of the International Telecommunication Union (ITU), should provide, for the session of the Working Group to be held in 1997, an analysis of the compatibility of the approach contained in the working paper with the existing rules and procedures of ITU relating to the use of the geostationary orbit (A/AC.105/639, para. 35). That recommendation was subsequently endorsed by the Committee on the Peaceful Uses of Outer Space at its thirty-ninth session.[1]

3. Pursuant to that recommendation, the present working paper was prepared by the Secretariat, in cooperation with the ITU secretariat.

I. EXISTING REGULATIONS OF THE INTERNATIONAL TELECOMMUNICATION UNION RELATING TO THE USE OF THE GEOSTATIONARY ORBIT

4. The legal instruments of ITU are established by its plenipotentiary and world radiocommunication conferences. The major principles included in the ITU regulations take into account those embedded in various United Nations treaties and legal principles on outer space. The most important of these, which has been taken as a basis for ITU space-related regulations, is the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (General Assembly resolution 2222 (XXI), annex).

5. The regulatory basis of the international regulation for the use of orbit/spectrum resources is found in the Constitution and Convention of the International Telecommunication Union,[2] which entered into force on 1 January 1996.

6. With regard to the use of the geostationary satellite orbit (GSO), the ITU regulations provide for two principles of frequency spectrum and GSO resource distribution. These are the principles of the rational, efficient and economic use (hereinafter referred to as "efficient use") of and equitable access to the resources.

7. These two principles of the ITU space regulations are laid down in the ITU Constitution, article 44, paragraph 2, which stipulates that:

> "In using frequency bands for radio services, Members shall bear in mind that radio frequencies and the geostationary-satellite orbit are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to both, taking into account the special needs of the developing countries and the geographical situation of particular countries."[2]

8. The ITU Radio Regulations,[3] a binding international treaty setting out the procedures for all radio communication services, contain detailed regulations and procedures governing orbit/spectrum use.

9. The two principles of equitable access and efficient use have been introduced in the Radio Regulations through two different approaches, each of them being applied in different parts of the frequency spectrum:

(a) The equitable access principle is implemented through frequency/orbital position plans by setting aside adequate spectrum for such use. This approach, called a priori planning, grants future rights to each State on the basis of agreed principles;

(b) The approach intended for efficient use is implemented in other frequency bands using a "first come first served" procedure, which is based on the coordination of the actual orbit/spectrum requirements. This approach, called the "coordination procedures", grants rights on a case-by-case basis as a specific case arises.

10. A priori planning ensures equitable access to orbit/spectrum resources. The progressive exploitation of the orbit/frequency resources and the resulting likelihood of congestion of GSO prompted ITU member States to consider more seriously the question of equitable access in respect of the orbit/spectrum resources. That resulted in the creation, and introduction into the ITU regulatory regime, of frequency/orbital position plans in which certain portions of the frequency spectrum were set aside for future use by all countries. In the plans, each country has been guaranteed a predetermined orbital position and the use, at any time, of a certain portion of the frequency spectrum. The plans, together with the associated procedures, guarantee for each country equitable access to the spectrum/orbit resources, thereby safeguarding their basic rights. Such plans govern a considerable part of the frequency usage of the most resource-demanding communication services, where congestion of GSO was foreseen by administrations.

11. The creation of frequency/orbital position plans was an answer to the requirement of those administrations, mainly of developing countries, which, at the moment of the establishment of the plan, were not in a position to use those resources. Consequently, part of the frequency spectrum was set aside for future use through the application of the associated procedures without any further priority question being raised.

12. The coordination procedures ensure the efficient use of orbit/spectrum resources. In the process of establishing ITU space-related legislation, emphasis was placed from the outset on efficient and rational utilization. That concept was implemented through a "first come first served" procedure. This procedure

("coordination before use") is based on the coordination of actual orbit/spectrum requirements. The right to use a satellite position is acquired through negotiation between the administrations concerned by the actual usage of the same portion of the orbital segment. If applied correctly (i.e. to cover genuine requirements), the procedure offers a means of achieving efficient spectrum/orbit management; it serves to fill available positions in the orbit as needs arise and results, in principle, in an optimum orbital distribution of space stations. On the basis of the ITU regulations, and in the frequency bands where this coordination concept is applied, administrations of member States designate the amount of orbit/spectrum resources that is required to satisfy their telecommunication requirements. The national administrations then assign frequencies and orbital positions, apply the appropriate procedures (international coordination and recording) for the space segment and Earth stations of their (governmental and private) networks and assume continuing responsibility for the networks.

13. The ITU legal regime governing the use of GSO is the result of more than 30 years of continuous effort by the ITU member States. The regulatory framework is constantly being adapted to changing circumstances and has achieved the necessary flexibility in satisfying the two major, but not always compatible, requirements of efficiency and equity.

14. The last general revision of the Radio Regulations was effected by the World Radiocommunication Conference (WRC) held at Geneva from 23 October to 17 November 1995. That Conference simplified and streamlined the Radio Regulations and established simplified procedures applicable to all the different cases that in the past were covered by separate pieces of the regulations. The procedural part of the new regulations will enter into force on 1 July 1998.

15. With the dramatic development in telecommunication services, there has been an increasing demand for spectrum/orbit usage for practically all space communication services. This increase is attributable to many factors. These include not only technological progress, but also political, social and structural changes around the world and their impact on the liberalization of telecommunication services, the introduction of non-GSO satellite systems for commercial communications, growing market orientation, the change in the way this widening market is shared between private and public service providers and the general globalization and commercialization of communication systems.

16. These elements led the Plenipotentiary Conference of the International Telecommunication Union, held at Kyoto, Japan, from 19 September to 14 October 1994, in its resolution 18,[4] to call for a new in-depth review of the ITU spectrum/orbit resource allocation procedures. The aims of the review are, *inter alia*, to ensure equitable access to resources, to better match coordination procedures to the needs of administrations of member States and to ensure better linkage between those procedures and commitments to actually implement networks. As part of the review, issues under study by ITU include the reservation of orbit capacity without actual use (thus creating "paper" satellites), which contributes to congestion; the uncoordinated use of spectrum and orbital resources; the lack of adequate mechanisms for dispute resolution in a situation in which complex satellite systems might result in an almost continuous series of inter-system coordination; the efficient use of orbit and spectrum resources, particularly valuable orbital segments in which spectrum utilization could be enhanced by applying advanced technologies; and the problem of equitable access to orbit and spectrum resources.

17. In 1996, various bodies of ITU were engaged in seeking solutions to all those problems. The results of the review process will enable the membership of ITU to further review and revise the legal regime applicable to all space applications and services. The final report will be submitted to the World Radiocommunication Conference to be held at Geneva from 27 October to 21 November 1997.

II. THE APPROACH DESCRIBED IN THE WORKING PAPER AND ITS COMPATIBILITY WITH THE EXISTING REGULATORY PROCEDURES OF THE INTERNATIONAL TELECOMMUNICATION UNION RELATING TO THE USE OF THE GEOSTATIONARY ORBIT

18. The present section deals with the principles recommended by Colombia in its working paper (A/AC.105/C.2/L.200 and Corr.1, sect. III).

19. Because ITU is a specialized agency of the United Nations and its membership is almost the same as that of the United Nations, the legal instruments established by ITU and the United Nations should be consistent. Therefore, it could be said that the approach contained in the working paper may be made compatible with the existing rules and procedures of ITU relating to the use of the geostationary orbit as long as the points described below are taken into consideration.

Recommendation (a)

20. The approach set out in recommendation (a) is aimed at remedying the difficulties, as seen by the sponsor of the working paper, of gaining access to the orbit/spectrum resources in the "non-planned" bands and services where the principle of "first come first served" prevails.

21. Recommendation (a) should ensure against the introduction of possible retroactive effects on those previously "filed" systems that benefit from the efficient nature of the applicable "first come first served" principle.

22. In addition, care must be taken that the preferential treatment of some of the claims to access GSO established by this provision do not lead to the creation of "paper" satellites, resulting in a reservation of an orbital position without actual use.

23. The 1995 World Radiocommunication Conference established "simplified" coordination and notification procedures applicable to coordination between space networks. It should also be considered that these "simplified" procedures may offer the minimum of operational restrictions possible referred to in recommendation (a) and may lessen instances of difficult processes of coordination between countries.

Recommendation (b)

24. Recommendation (b) states that the claim of countries to use frequencies and to occupy geostationary orbital positions in the cases provided for under recommendation (a) should be exercised in accordance with the provisions of the ITU Radio Regulations and that account should be taken of the provisions of resolution 18 of the Kyoto Conference to guarantee effective use of the geostationary orbit.

25. As noted in paragraph 16 above, the Kyoto Conference, in its resolution 18, called for a new in-depth review of the ITU spectrum/orbit resource allocation procedures. The 1997 World Radiocommunication Conference will, *inter alia*, review activities under resolution 18. The concepts of recommendation (a) might be further developed, following the deliberations of the 1997 World Radiocommunication Conference on resolution 18.

Recommendation (c)

26. ITU would welcome all possible efforts to be made to eliminate or remove space debris from GSO, as proposed in recommendation (c). The accumulation of debris and spent satellites may, in fact, become an obstacle to the efficient and economic use of the orbit.

Notes

[1]*General Assembly, Official Records, Fifty-first Session, Supplement No. 20* (A/51/20), para. 135.

[2]*Final Acts of the Additional Plenipotentiary Conference* (Geneva, 1992): *Constitution and Convention of the International Telecommunication Union; Optional Protocol; Resolutions; Recommendation* (Geneva, 1993).

[3]*Radio Regulations* (International Telecommunication Union, Geneva, 1990).

[4]*Final Acts of the Plenipotentiary Conference of the International Telecommunication Union (Kyoto, 1994)* (Geneva, 1995).